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PROCEEDINGS
OF
THE ROYAL GEOGRAPHICAL SOCIETY
OF LONDON.

SESSION 1860-61.

Fourteenth Meeting, Monday, June 10th, 1861.

SIR RODERICK I. MURCHISON, VICE-PRESIDENT, in the Chair.

ELECTIONS.—Colonel the Hon. Hugh Annesley, M.P.; Lieut.-Colonel J. Dixon; Major Robert Jones Garden; Sir Willoughby Jones, Bart.; Lieut. Langham Rokeby; the Duke of Sutherland; Lieut.-Colonel the Hon. W. P. Manvers C. Talbot; Capt. Henry Thurburn; and G. T. Archer; William Aubin; David Balfour; George Berkley; William Blenkin; Henry Fox Bristowe; Charles Butler; George F. Chambers; J. Coghlan; David Cruikshank; George Hamilton Dundas; Thomas W. Du Pré, M.D.; Henry Edwards; John Bromley Foord; John Gallagher; Alexander Grant; Chas. Hall Hall; Blake Alex. Hankey; Alexander Hector; J. George Hodgins; Jas. Stewart Hodgson; William Kelly; James Lamont; John Pennington Legh; Alexander Ogilvie Lloyd; John C. Loch; Arthur Pemberton Lonsdale; Frederick Pike; Lonsdale Pounden; William Severin Salting; Hercules Scott; Joseph Travers Smith; J. D. Vaughan; Arthur Way; E. Wigzell; and Junius Spencer Morgan, Esqrs., were elected Fellows.

The First Paper read was—

1. *Notes on the direct Overland Telegraph to India.* By MAJOR-GEN.

SIR H. C. RAWLINSON, K.C.B., F.R.G.S., &c.

THE author, in describing the present state and prospects of the overland telegraph to India, stated that his communication was wholly based upon public documents, and that he disclaimed all title to appear as the mouth-piece of the British Government.

In the year 1848, the Porte, after long negotiation with this country, undertook to construct, at its own expense, a line of telegraph from Constantinople to Bussorah. The condition was annexed that it should hereafter form a link in the communication between England and India, for it could not be expected to pay except through

carrying British messages. This line is now in working order between Constantinople and Baghdad, a distance of 1314 miles, but the further course of the great Indian communication has not yet been officially decided upon.

The original proposal of laying a sub-fluvial cable from Baghdad to Bussorah, and thence a submarine one onwards, has fallen into discredit owing to the widely-felt mistrust of telegraphic communications under water. Sir H. Rawlinson therefore confined himself to considering the land routes in minute detail. He showed it would be necessary to avoid the disturbed districts eastward of the lower course of the Euphrates, and concluded that a line passing to Teheran appeared the best course. Teheran has peculiar advantages as a principal station : first, because a line passing that way would be sure of the favour of the Persian Government ; and secondly, because it would there be connected with other lines of telegraphs. An electric communication is already established between Teheran and Tabriz, while Persian telegraphy seems likely to progress and to connect itself with the Russian system by way of Tiflis, and even with our Scindian frontiers by way of Herat. After leaving Teheran the Indian line would naturally pass Ispahan and Shiraz and reach Bunder Abbas, at the mouth of the Persian Gulf. From Baghdad to Bunder Abbas would be 1302 miles. Nearly the whole of this route passes over ground with which geographers are acquainted, and a minute description of it is contained in the present paper.

From Bunder Abbas to Kurrachi the case is different, for we know much less of the land. However, the coast virtually belongs to two princes, both of whom are in close alliance with us, and sincerely desirous of aiding the construction of the telegraph ; namely, the Imaum of Muscat and the Khan of Kelat. Moreover, we are not without some direct information, though the Reports which are most valuable are not of recent date :—one of these is by Capt. Grant (‘ Journal of the Royal Asiatic Society,’ 1836), and the other by an Affghan agent named Hagi Abdul Nebi (‘ Journal of the Asiatic Society,’ Bengal, 1844). Lastly, the steamers of the Indian Navy have been in the habit of touching at several points along the coast, and the *Zenobia* has been recently sounding close in shore. Officers will probably soon be deputed to execute a complete survey of the route along the coast. In the mean time preliminary reports have been received from the Commissioner in Scinde, and from the agent for the Government of India with the Imaum of Muscat, which are as favourable as could be wished.

From Bunder Abbas to Kurrachi would be 731 miles, and there-

fore the entire distance from Constantinople to Kurrachi by the line described by Sir H. Rawlinson would amount to 3351 miles.

SIR RODERICK MURCHISON said he thought they ought to renew their thank to the distinguished author of the paper they had just heard. They had great reason in that Society to be proud of Sir Henry Rawlinson, because they had a right to flatter themselves on the fact that the Royal Geographical Society was the first scientific body that, many years ago, perceived his merits. It was to them that Sir Henry communicated his first work on the North of Persia, and for that communication the Geographers adjudged to him their Royal medal. He did not say that that medal had incited him to do all the great things he had done since, for Rawlinson would have risen through every difficulty; without that reward he would have discovered the ruins of Babylon and deciphered the unknown languages of its peculiar inscriptions; but they had a right to flatter themselves that they were the first to discover the merits of that remarkable man. The paper that he had read had been put before them in a very clear manner, and showed distinctly what was doing and what had been done in connecting England with our East Indian possessions. There were several gentlemen present who had traversed those regions, amongst whom were Captain Selby and Captain Lynch, and no doubt they would give the Meeting their views on the subject.

CAPTAIN LYNCH thought the subject one of the most important ever brought before the Society. It had long engaged his attention, and he believed it the true path to India. He would, after the clear manner in which the paper had been brought before them, only allude to that part of the country which lay between Shiraz and Bunder Abbas. He had examined it many years ago, but not with reference to a telegraphic communication, and he still retained sufficient recollection of the route to know that between Shiraz and Bunder Abbas not the slightest physical difficulty would be experienced in establishing a telegraphic wire. It was a beautiful country, rising by steps from the Persian Gulf. The telegraphic wire would be perfectly safe in all that part of the country.

CAPTAIN SELBY said he had only just come from Baghdad, a part of the country where the telegraph had been laid, and could say it had been entirely successful. The wire had been carried over mountains, and over a part of the country where it would have been thought hardly possible to have done so. It had been laid throughout with great perseverance, and he had no doubt it would succeed. The first message was brought from Constantinople to Baghdad whilst he was there, and a very important message it was. When he was at Mosul the line was in perfect working order, and messages were constantly being transmitted. But he very much feared that, if left in the hands of Turkish officials, it would be conducted at much greater cost, and under much greater difficulties, than under English supervision. The Kurdish and Arab tribes had no belief that anything introduced by the Turks into their country could be for their good, and they would look upon the line as the forerunner of other and stronger measures for their repression. Indeed, when at Diarbekir on his way to England, he was present at an interview between a sheikh of the D'huffeeah Arabs and Mr. John Taylor, our consul at that town. Enjoying, as this gentleman does in a most marked and perfect manner, the entire confidence and affection of all the Arab tribes among whom he has been, speaking their language perfectly, and entirely conversant with all their manners and customs, his home is ever the resort of all who have known him in the desert, and who seek him either to renew old friendships or to ask counsel in times of difficulty. The conversation turned on the line that was then being carried through the country, and Mr. Taylor asked the D'huffeeah whether the Arab tribes would let it pass through the desert. "If in your hands,

yes," the D'thuffeeah replied ; " but if in the hands of the Turks we should destroy it, looking upon it but as the forerunner of forts and soldiers to coerce us." He was also opposed to the submarine line from the Persian Gulf to Kurrachi, except close in shore along the Mukran coast ; the bank of soundings was very irregular, and experience had proved that in very deep water there were difficulties to be overcome which as yet we had not taken into account. For his part, he believed that the enormous pressure to which the wire was subjected at great depths destroyed the insulation.

SIR CHARLES BRIGHT was sure that all those who, like him, were interested in telegraphic enterprise, must have felt greatly indebted to the gentlemen who had spoken, for the manner in which they had treated the subject. To have telegraphic communication with India was of vital interest to the country, and it was most satisfactory to be assured by travellers acquainted with the country, that it was possible to have an overland communication to India. But at the same time they must not be dependent altogether upon this proposed route *viâ* Baghdad. The overland line could be worked very well in times of peace, and the difficulties of maintaining it might have been overrated ; but it was necessary, looking forward to the possibility of times of trouble, that we should have an additional line of communication with India, seeing that there were really no natural obstacles of any consequence by the other route. It would not do to be dependent upon either the Turkish or the Persian Government ; he therefore felt that they must have a direct line of communication by submarine wires laid down the Red Sea to Aden and thence to Kurrachi, in addition to the line described by Sir H. Rawlinson. That gentleman had started in advocating the line upon the assumption that submarine enterprise was at a standstill, and hitherto had been unsuccessful. In that he (Sir Charles) did not agree with him. The public did not always hear of those cables which were worked with success ; they did not hear of those lines which were carrying our messages daily to the Continent, and working excellently in many other parts of the world. There were twenty-six different wires—some laid in shallow and some in deep water—working successfully to various parts of the Continent alone, without enumerating many others elsewhere, which had never ceased to work for an hour, and had not cost a shilling for repairs since the day they were laid. He thought Sir Henry, if he was acquainted with the real causes of the defects in the present Red Sea line, would agree with him that a line ought to be laid down the Red Sea as well as along the shores of the Persian Gulf. They ought to have by sea a massive durable line laid down with every appliance that modern science could suggest ; and if this were done judiciously, and without parsimony, he was sure that this country would have a complete communication with India, and thence to Australia, of the most certain and permanent character.

MR. GEORGE SHAW LEFEVRE said he thought that some credit should be given to the much-abused Turkish Government for the enterprise they had shown in laying down a line of telegraph to Baghdad—a work of far greater importance to our country than to their own. He was about four years ago at Constantinople with the officers in the employ of the Euphrates Telegraph Company, and was witness to the intrigues which took place on the part of the Austrian and Russian diplomatists to prevent the formation of the line proposed by that Company, which was identical with that now completed as far as Baghdad. By the aid of Lord Stratford the consent of the Turkish Government was after many weeks obtained, but at the last moment the Company were thrown over by the home Government, owing to the recommendation of the late Mr. Wilson in favour of a Red Sea line and an Austrian line from Alexandria to Trieste—a decision which was most unfortunate, as it had postponed for some years the completion of telegraphic communication with India. He quite agreed with the last speaker that we should have a second line to India, but certainly not that which he advocated, the defunct Red Sea line. He should recommend, if the

Turkish line were continued from Baghdad to Ispahan, as proposed by Sir H. Rawlinson, that a line should be made from Ispahan to Tiflis, to which place he believed that the Russian Government had already laid down a telegraph, or were shortly intending to do so. It was to be noticed Tiflis and Ispahan were points upon the shortest line which could be drawn from London to Kurrachi, namely, the arc of a great circle, whose course would lie through the centre of Germany, the south of Russia, the Crimea, Tiflis, Persia, and Beloochistan. After what had been said to-night he believed that line to be practicable throughout.

SIR RODERICK MURCHISON said one of the Council of India was present, and he was sure the Meeting would like to hear him speak upon the subject.

MR. PRINSEP thought it was hard to be called upon to speak upon the geographical merits of a line with respect to which he could boast of no personal knowledge. All he could say was, that as a member of the Council of India he had always supported a land line in preference to a submarine one. He thought the idea of a submarine cable was chimerical. If one were laid down, he did not think it would be lasting; and those who speculated in submarine telegraphs, if once a failure took place, lost the whole of their capital. He had not the slightest doubt that the line which Sir Henry had brought before their notice would be laid successfully. The Government of India and the Government of England were both in favour of the enterprise. As regarded the extension of the line to our colonies, that was quite a new and a difficult question. There had been an attempt to carry a line via Singapore and Java, and thence to Sydney, but the cable met with an accident; and now they were going to lay the line from Egypt to somewhere in the Mediterranean. The Government had given up the idea of laying the cable to Singapore, as they did not think it could be successfully laid in the way it was intended.

SIR CHARLES BRIGHT.—A portion has just been laid from Malta to Tripoli.

MR. MARSHMAN said he did not come to the meeting with the intention of saying anything, but he felt called upon to say a few words respecting the Red Sea telegraph, and in the first place he must mention that his friend Mr. Prinsep was misinformed when he said those who embarked in that undertaking would be losers.

MR. PRINSEP.—Not forgetting the guarantee.

MR. MARSHMAN said they had a guarantee from Government of $4\frac{1}{2}$ per cent., so that there could not be a doubt as far as the security of those who had embarked in the undertaking was concerned. He had alluded to the guarantee, which was a matter of the highest importance to the body of shareholders. With regard to the line itself, they must be fully aware that messages were conveyed by it for five days between Alexandria and Calcutta, and on one occasion a message was received from Calcutta to London, through the wires of the Red Sea telegraph, in six days, five days of which were occupied in conveying the message by steamer from Egypt to France. Some of the sections of their cable had given way, and they had not been able to go on with the repairs, because the Treasury had not yet given their sanction to the operation.

SIR RODERICK MURCHISON thought that, as Sir Henry Rawlinson had not said a word against the Red Sea line, the discussion had better be confined to the paper, which was the overland route.

MR. CRAWFURD would not have risen to say a word upon the subject, had it not been for the two last speakers. The Government had already sunk some hundreds of thousands of pounds upon oceanic cables, and he hoped they would never try them again. Whatever attempts might be made, he believed they would fail. By the Red Sea cable the shareholders had lost nothing, but Government had lost 800,000*l*. The shareholders of the At-

lantic cable had lost everything, and he repeated that he hoped they would never hear anything more about those distant oceanic cables. He was very much obliged to Sir Henry Rawlinson for his paper, for it dealt practically with a most important subject.

SIR RODERICK MURCHISON said that before Mr. Markham read his paper he had to apologise to the Meeting for the unavoidable absence of their President, Lord Ashburton. The President's next soirée was fixed for Wednesday the 19th inst., when his Lordship would be glad to see them all at Bath House. He also wished to state that they had a recent communication from Dr. Livingstone, which showed that he had made an attempt with the *Pioneer* to ascend the river Rufuma; and, after grounding several times, he had been obliged to desist, returning to the mouth of the river, and finding his way back to the Zambesi, with the intention of going to his old country watered by the Shire.

The Second Paper read was—

2. *Sources of the River Purus, in South America.* By C. R. MARKHAM, Esq., F.R.G.S.

MR. MARKHAM had been employed on a special service by H. M.'s Government in the early part of this year, to collect cinchona plants in South America—a duty which led him to explore the country immediately to the N. and N.W. of Lake Titicaca. There arise the rivers Madre de Dios and Ynambari, which are the chief headwaters of the still unexplored Purus. The Purus is the only great southern affluent of the Amazon which is entirely unknown to geographers, although, from its position and body of water, it seems destined to become the most important of them all. Without Mr. Markham's sketch-map it is difficult to explain the results of his explorations. They were chiefly in the province of Carabaya, which lies at the foot of the Eastern Andes, extending from Marcapata to the frontier of Bolivia. The history of this province dates from Inca historians, by whom we hear of it yielding great quantities of gold, and is continued in Charles V.'s time, when a party of runaway gold-digging mulattoes settled in it. Ultimately the Spaniards took possession. About seven years ago it attracted attention anew, and became a sort of California to South America, but success in gold-digging was found uncertain, and the excitement died away. Crucero, so called from the number of roads that cross in the place, is the mud-hut capital of the province, planted on a bleak table-land, 13,000 feet above the sea. On the west snow-mountains rise high above the town, but eastward the descent is rapid into the forest-covered plains of South America. In these warm slopes lie all the wealth and population of Carabaya. Its population is about 22,000, and they export cocoa, coffee, chili pepper, and gold. The valleys between the consecutive spurs of the Andes are described in order by Mr. Markham; the direct roads